



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/621,852

07/16/2003

Yanjun Ma

SLA0815 (SMT324D)

1808

7590

08/24/2004

David C. Ripma  
Patent Counsel  
Sharp Laboratories of America, Inc.  
5750 N.W. Pacific Rim Boulevard  
Camas, WA 98607

EXAMINER

DIAZ, JOSE R

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/621,852

Applicant(s)

MA ET AL.

Examiner

José R. Díaz

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 16 and 17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16 and 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 16-17 are still rejected under 35 U.S.C. 102(b) as being anticipated by Watabe et al. (US Pat. No. 5,146,291).

Regarding claim 16, Watabe et al. teaches a sub-micron MOS transistor comprising: a substrate (2) (see fig. 1); and an active region (portion of the substrate as shown in fig 1.), including a gate region (4a) (see fig. 1) having a length of less than one micron (i.e. about 0.5  $\mu\text{m}$ , see col. 7, lines 37-40 and 45-48, and col. 8, lines 23-24); a source region (5a) including a LDD source region (5b) (see fig. 1); and a drain region (6a) including a LDD drain region (6b) (see fig. 1); wherein the ion concentration in said source region (5a) and in said drain region (6a) is between about  $1 \times 10^{20}$  to  $1 \times 10^{21} \text{ cm}^{-3}$  (see col. 17, lines 22-25), and wherein the ion concentration in said LDD source region (5b) and in said LDD drain region (6b) is between about  $5 \times 10^{18}$  to  $5 \times 10^{19} \text{ cm}^{-3}$  (see col. 17, lines 2-5).

Regarding claim 17, Watabe et al. further teaches an insulating oxide layer (3), a source electrode (12), a gate electrode ( $V_g$ ), and a drain electrode (13) (see figs. 1 and 2B).

### ***Response to Arguments***

Applicant's arguments filed June 2, 2004 have been fully considered but they are not persuasive. In response to the arguments that Watabe does not anticipate the claimed concentration range, the range taught by Watabe must be considered to include all of  $10^{16}$  to  $10^{18}$ , because, as is known in the art, if a range is to be somehow limited, the limitations are included, not assumed<sup>1</sup>. For example, if Watabe intended to limit the upper end of the range to  $4 \times 10^{18}$ , it would have been explicitly limited. Thus, the teaching of  $10^{16}$  to  $10^{18} \text{ cm}^{-3}$ , absent a limitation, includes all possible values between  $10^{16}$  and  $10^{18}$ .

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

---

<sup>1</sup> See US Pat. No. 5,212,102 in which Iranmanesh et al. discloses a range of  $10^{17}$  to  $10^{18}$  atoms  $\text{cm}^{-3}$  that includes a concentration of  $1 \times 10^{18}$  atoms  $\text{cm}^{-3}$  (see col. 6, lines 30-33).

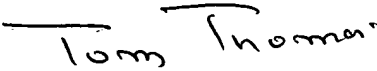
***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to José R. Díaz whose telephone number is (571) 272-1727. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JRD  
8/19/04

  
TOM THOMAS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800